

## **The Impact of International Oil Price on Electricity Consumption and Output: A Case of Manufacturing Sector in Malaysia**

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### **Abstract**

This paper investigates the impact of international oil price on output and electricity consumption in the manufacturing sector in Malaysia. We found that electricity consumption, output and the international oil price are cointegrated in the long run. The relationship between electricity consumption and output is significantly positive. In the long run, we found a unidirectional causality runs from output to electricity consumption. This result indicates that the development of manufacturing sector stimulates greater demand for electricity. Government needs to make sure that the future planning of electricity supply is in line with the economic development planning to avoid shortage in electricity supply. Focusing more on industrial development policy to promote growth in manufacturing sector is recommended since energy conservation is expected not to give an adverse impact to the output growth. In the short run, there are two unidirectional relationships exist, 1) from the international oil price to electricity consumption, and 2) from international oil price to manufacturing output. A shock in international oil price might affect both electricity consumption and output growth in the short run only.

Keywords: electricity consumption, output, granger causality, cointegration.

### **1. Introduction**

A research on the impact of energy in production becomes the new interest in response to high dependency on energy usage in residential, commercial, agriculture and industrial sectors. Many studies have been carried out at the macro and micro levels to explore the impact of energy on economic growth.

To date, there are a lot of studies have examined the relationship between electricity consumption and economic growth at the macro level by using bivariate model, multivariate production function model and multivariate demand function model. However, minimal research have been undertaken to explore the impact of energy consumption in energy-based sectors like manufacturing. It is important to discover the impact of energy consumption in strategic sector, namely, manufacturing sector, and subsequently to draw some significant implications for both policy makers and manufacturing firms. Thus, there is a need to examine whether the electricity consumption have any significant impact on the performance of manufacturing sector. In addition, it is also crucial to explore the determinants of electricity consumption in manufacturing sector. Hence, in this study, the factor of international oil price has been taken into consideration in order to examine the impact of price changes on the trend of electricity consumption. In sum, the pattern of energy